CLAIMS

1. A device which comprises:

(a) a material which is degradable in the presence of hydrogen;

(b) a package containing said material; and

(c) a layer of a hydrogen getter containing a transition metal within said package.

2. The device of claim 1 wherein said transition metal is taken from the group consisting of palladium, platinum and nickel.

3. The device of claim 2 wherein said material is a group III-V semiconductor composition.

4. The device of claim 2 wherein said material is gallium arsenide.

5. The device of claim 4 wherein said package is a hermetic sealing package hermetically sealing said material and said getter within said package.

6. The device of claim 1 wherein said hydrogen getter is the oxide of a transition metal.

7. The device of claim 2 wherein said hydrogen getter is the oxide of a transition metal.

8. The device of claim 2 wherein said material is gallium arsenide.

9. The device of 1 wherein said getter contains elemental transition metal.

10. The device of 2 wherein said getter contains elemental transition metal.

11. A device which comprises:

(a) a material which is degradable in the presence of hydrogen; and

(b) an elemental titanium-containing package having a substantially oxide-free interior surface housing said material therein, said package containing a layer of hydrogen permeable palladium on said oxide-free surface between an inner surface of said package and said material.

12. The device of claim 11 wherein said material is a group III-V semiconductor compound.

13. The device of claim 12 where said material is gallium arsenide.

14. The device of claim 11 wherein said package hermetically seals said material within said package.

15. A method of making a package containing a substantially hydrogen-free interior which comprises the steps of:

(a) providing a package having a hollow interior region; and

(b) forming a layer of elemental titanium within said interior region.

16. The method of claim 15 further including the step of forming a hydrogen-permeable layer of palladium over said layer of elemental titanium.

17. The method of claim 16 further including the step of disposing a hydrogen degradable material within said hollow interior.

18. The method of claim 17 wherein said material is a group III-V semiconductor compound.

19. The method of claim 18 where said material is gallium arsenide.

20. The method of claim 15 wherein said package hermetically seals said material within said package.

21. A method of making a package containing a substantially hydrogen-free interior which comprises the steps of:

(a) providing a package having a hollow interior region; and

(b) forming a layer of a hydrogen getter taken from alloys including vanadium, zirconium and iron having hydrogen gettering properties within said interior region.

22. The method of claim 21 further including the step of disposing a hydrogen degradable material within said hollow interior.

23. The method of claim 22 wherein said material is a group III-V semiconductor compound.

24. The method of claim 23 where said material is gallium arsenide.

25. The method of claim 21 wherein said package hermetically seals said material within said package.

26. The method of claim 21 wherein said layer of hydrogen getter further includes the oxide of a rare earth metal.

27. The method of claim 24 wherein said layer of hydrogen getter further includes the oxide of a rare earth metal.

28. A method of making a package containing a substantially hydrogen-free interior which comprises the steps of:

(a) mixing powders of a hydrogen gettering material taken from the class consisting of titanium and zirconium-vanadium-iron alloys in an organic vehicle taken from the class consisting of polymeric materials including epoxies, silicones, acrylics, urethanes, polyimides and benzocyclobutene;

(b) providing a package having a hollow interior region; and

(c) depositing said mixture of (a) within said hollow interior region.

29. The method of claim 28 wherein said mixture is deposited by screen printing.

30. The method of claim 28 wherein said mixture is deposited by a numerically controlled placement and dispensing pump.

31. The method of claim 27 further including the step of disposing a hydrogen degradable device within said hollow interior region.

32. The method of claim 31 wherein said hydrogen degradable device is gallium arsenide.

33. The method of claim 31 wherein said package hermetically seals said device therein.

34. The method of claim 32 wherein said package hermetically seals said device therein.

35. A method of making a package containing a substantially hydrogen-free interior which comprises the steps of:

(a) providing a package having a hollow interior region;

(b) forming a vent through said package from said hollow interior region to the exterior of said package; and

(c) forming a hydrogen permeable layer over said vent.

36. The method of claim 35 wherein said hydrogen permeable layer is a layer of palladium.

37. The method of claim 35, further including a hydrogen degradable device disposed within said hollow interior region.

38. The method of claim 36, further including a hydrogen degradable device disposed within said hollow interior region.

39. The method of claim 37 wherein said device is a gallium arsenide semiconductor.

40. The method of claim 38 wherein said device is a gallium arsenide semiconductor.

41. The method of claim 40 further including the step of placing said package in an environment where the concentration of hydrogen is less than the concentration of hydrogen in said hollow region.

42. A method providing hydrogen gettering properties to a device which comprises the steps of:

(a) providing a hydrogen getter material in one of powder or particulate form;

(b) mixing said getter material with a binder capable of attaching said getter material to a predetermined surface; and

(c) adhering the mixture of getter material and binder to a surface.

43. The method of claim 42 wherein said step of adhering comprises the steps of screen printing said mixture onto a surface and then curing said mixture.

44. The method of claim 42 further including the step of mixing an RF absorber material with said getter material and binder in step (b).